

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* VIKTOR BROST AND BERNHARD LAMICH

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Appeal 2007-2884  
Application 09/837,072  
Technology Center 3700

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Decided: November 7, 2007

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Before WILLIAM F. PATE, III, TERRY J. OWENS and JOHN C. KERINS,  
*Administrative Patent Judges.*

KERINS, *Administrative Patent Judge.*

DECISION ON APPEAL

STATEMENT OF THE CASE

Viktor Brost et al. (Appellants) seek our review under 35 U.S.C. § 134 of the final rejection of claims 1, 2 and 11 under 35 U.S.C. §102(e). We have jurisdiction under 35 U.S.C. § 6(b) (2002).

SUMMARY OF DECISION

We AFFIRM.

## THE INVENTION

The Appellants' claimed invention is to a header-less vehicle radiator.  
Claim 1, reproduced below, is representative of the subject matter on appeal.

1. A radiator comprising:

a radiator core defining a front and a rear face thereof and including a plurality of generally rectangular shaped tubes interleaved with layers of fins for passage of air through said core; and

a collecting tank attached to said core in a fluid tight manner to provide fluid communication between said tubes and said collecting tank;

said tubes each having a pair of side walls extending through said core and joined by end walls at said front and rear faces of said core;

said tubes each terminating at one end thereof in a formed segment wherein said end walls of each tube are bifurcated for a distance from said one end of the tube, and at least one of said side walls is directed away from the other side wall to be adapted to contact a side wall of an adjacent tube in the core;

said directed side wall being joined in a fluid tight manner to said contacted side wall of said adjacent tube;

said collecting tank having walls thereof extending over said front and rear faces of said core past said bifurcation of said end walls and joined in a fluid tight manner to said end walls of said tubes along and beyond said bifurcation to thereby form a fluid tight joint between said walls of said collecting tank and said end walls of said tubes.

### THE REJECTION

The Examiner relies upon the following as evidence of unpatentability:

Jamison                                      US 6,311,768 B1                                      November 6, 2001

The following rejection is before us for review:

1. Claims 1, 2 and 11 stand rejected under 35 U.S.C. §102(e) as anticipated by Jamison.

### ISSUE

The sole issue before us is whether Appellants have shown that the Examiner erred in rejecting Claims 1, 2, and 11 under 35 U.S.C. §102(e) as anticipated by Jamison. This issue turns on whether the Jamison patent discloses each limitation set forth in these claims, and, in particular, whether Jamison discloses generally rectangular shaped tubes, and that the walls of a collecting tank are joined in a fluid tight manner to end walls of the tubes.

### FINDINGS OF FACT

We find that the following enumerated findings are supported by at least a preponderance of the evidence. *Ethicon, Inc. v. Quigg*, 849 F.2d 1422, 1427 (Fed. Cir. 1988) (explaining the general evidentiary standard for proceedings before the Office).

1. The Jamison radiator core 18 includes a plurality of plates joined at their edges, forming a plurality of tubes 20 having flow passages 54 therethrough, with the flow passages being bounded by a pair of parallel side walls 48 and end walls

joining the side walls. The tubes have layers of fins 22 interleaved therewith. (Jamison, col. 2, ll. 50-52; col. 3, ll. 9-15)

2. The end walls of the tubes in the Jamison radiator include portions or sections that are immediately adjacent to central planar portion 48. These portions are illustrated, but not identified by reference numerals, in Figures 3-11. (App. Br. 5-6)<sup>1</sup>

3. The end walls of the Jamison tubes include flanges 50, 52, extending outwardly from the flow passage in the tube. (Jamison, Figs. 3, 9, 10)

4. The Jamison radiator includes a U-shaped channel or collecting tank 26, 28 attached to the radiator core in a fluid-tight manner, and the collecting tank and tubes are in fluid communication. (Jamison, col. 3, ll. 31-37)

5. Each tube in the Jamison radiator has, at one end, a segment 56, 58 formed by a bifurcation of the end walls of the tube. At least one of the side walls is directed away from the other side wall, and is adapted to contact a side wall of an adjacent tube in the radiator core. (Jamison, col. 3, ll. 16-27; Fig. 8)

6. The walls of the collecting tank in the Jamison radiator extend past the bifurcation of the end walls. (Jamison, Figs. 3, 9, 10)

7. The collecting tank walls 70, 72 in the Jamison radiator are joined in a fluid-tight manner to the end walls along and beyond the bifurcation to form a fluid-tight joint between these walls. Jamison discloses that the channel side walls, corresponding to the claimed collecting tank walls, cover the root areas where the flanges 50, 52 are still joined together and are joined to the lateral edge portions 64

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<sup>1</sup> Citations to the Appeal Brief herein refer to Appellants' Second Amended Brief filed July 24, 2006.

of end flanges 56, 58, to create a fluid tight seal, so that fluid inside manifolds 26, 28 can only flow through the flow channels 54 inside plate pairs 20. (Jamison, col. 3, ll. 31-37)

8. The claim term, “generally rectangular”, refers to a cross-sectional shape of the tube. (Specification, p. 9, ll. 17-19)

9. Appellants have disclosed “generally rectangular shaped tubes” whose walls are not entirely planar. (Spec. p. 11, ll. 5-14; Figs. 6a, 6b)

10. Appellants specifically disclose an embodiment in which the tube side walls have one or more longitudinally extending ribs formed therein. (Spec. p. 11, ll. 5-14; Figs. 6a, 6b)

11. The ribs are formed by deformation of the side wall, evidenced by the disclosure that interior longitudinal ribs 46 would, when side walls are stacked next to each other, form a gap at an upper edge of the tube. The gap is present due to the non-planarity of the side walls. (Spec. p. 11, ll. 5-14)

## PRINCIPLES OF LAW

Anticipation of a claim exists when each and every element set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631 (Fed. Cir. 1987), *cert. denied*, 484 U.S. 827 (1987); *In re Cruciferous Sprout Litig.*, 301 F.3d 1343, 1349 (Fed. Cir. 2002). Once a prima facie case of anticipation has been established, the burden shifts to the Appellant to prove that the prior art product does not necessarily or inherently possess the characteristics of the claimed

product. *In re Best*, 562 F.2d 1252, 1255 (CCPA 1977); *In re Spada*, 911 F.2d at 708-09.

Patent application claims are given their broadest reasonable interpretation during the application process, for the simple reason that before a patent is granted the claims may be readily amended, for the purpose of distinguishing cited references, or in response to objections raised under Section 112, as part of the examination process. *Burlington Industries, Inc. v. Quigg*, 822 F.2d 1581, 1583 (Fed. Cir. 1987). This broadest reasonable construction is to be assessed in light of the specification as it would be interpreted by one of ordinary skill in the art. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1323 (Fed. Cir. 2005) (*en banc*).

## ANALYSIS

Appellants contend that the anticipation rejection under 35 U.S.C. §102(e) is erroneous for two reasons, summarized as follows:

(1) the Jamison radiator fails to disclose the claim limitation calling for the walls of the collecting tank to be joined in a fluid tight manner to end walls of the tubes to form a fluid tight joint therebetween; and

(2) the tubes in the Jamison radiator core are not “generally rectangular shaped tubes.”

We will address the latter contention first. Because Appellants have acknowledged that Claims 1, 2, and 11 stand or fall together, our focus will be on independent Claim 1. 37 C.F.R. §41.37(c)(1)(vii)(2006).

Claim 1 is directed to a radiator having a radiator core which includes, “a plurality of generally rectangular shaped tubes”. (App. Br., Claims Appendix) The claimed tubes are further characterized as “each having a pair of side walls extending through [the] core and joined by end walls at [the] front and rear faces of [the] core”. (App. Br., Claims Appendix)

In Appellants’ disclosure, the tubes are described as being, “formed by a pair of side walls 28... joined by a pair of end walls 30”. (Specification, p. 9, ll. 18-20) The tubes are either “extruded seamless tube[s]” (Spec. p. 14, l. 12), or are fabricated from first and second, generally U-shaped tube halves, the tube halves including a pair of legs extending in a generally perpendicular direction from one of the side walls. (Spec., p. 14, ll. 23-26) In this embodiment, the legs of each of the tube halves are butted against one another and joined, as by welding, to complete formation of the end walls and tube. (Spec., p.14. l. 28 to p. 15, l. 1)

Taking this description in conjunction with the drawings in the application (*see, e.g.*, Fig. 7), it is seen that the “generally rectangular shaped tubes” in Appellants’ disclosed embodiment have elongated parallel side walls joined by shorter end walls that are “generally perpendicular” (Spec., p. 14, ll. 25-26) to the side walls.<sup>2</sup>

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<sup>2</sup> We agree with Appellants that the term “generally rectangular shaped tubes” is to be interpreted, in light of the specification and claims, as well as how the term would be understood in the art, as referring to a cross-sectional shape of the tubes, and not as defining the shape of the tubes as seen in a plan or elevation view. (Finding of Fact 8, *compare with*, Answer 6-7 and Fig. 1A therein)

When a word of degree is used, such as the term "generally", it is necessary to determine whether the specification provides some standard for measuring that degree. *See Seattle Box Company, Inc. v. Industrial Crating & Packing, Inc.*, 731 F.2d 818, 826 (Fed. Cir. 1984). The term "generally rectangular" is not explicitly defined in Appellants' specification, nor is any explicit guidance provided to aid in determining what the term "generally" is intended to encompass.

Notwithstanding the lack of definition or explicit guidance, we can conclude that the term "generally rectangular" is intended to include cross-sectional shapes which deviate from being four planar surfaces joined at right angles. In particular, one example disclosed by Appellants includes side walls that are not planar over their entire surface, but include one or more longitudinally extending internal or external ribs formed by deforming the side wall. (Findings of Fact 9-11)

Given the context that a plurality of these tubes are to be arranged in a spaced, side-by-side manner in a radiator core, we find that the term, "generally rectangular", requires that the tubes have substantially parallel (but not necessarily completely planar) elongated side walls. Further, as illustrated, the substantially parallel side walls are spaced relatively closely together and are joined by short end walls, such that the cross-section of the tube has a clearly longer dimension and a clearly shorter dimension and a nominally rectangular flow passage.

The tubes disclosed in the Jamison patent meet these requirements and the claim limitation. Each tube 20 is formed from adjacent mating plates 44, 46, joined at their edges by "raised peripheral edge portions" or flanges 50, 52.



(Finding of Fact 1) The central planar portions 48 of these plates read on the claimed pair of side walls of a tube.

The end walls of the tube include the portions or elements (no reference numerals used) that are immediately adjacent to central planar portion 48.

(Finding of Fact 2) These unnumbered portions or elements are best shown in the marked-up version of Figure 4 presented at page 6 (and discussed at p. 5) of Appellants' Brief on Appeal. Appellants assert that these unnumbered elements constitute the end walls on the Jamison tubes. (App. Br. 5) The Examiner regarded these elements as forming *a part of* the end walls. (Answer 6) We agree with the Examiner, and find that the end walls in Jamison include the wall portions extending from the central planar portions of the plates to the area where the wall portions are joined together, and the flanges 50, 52, extending outwardly therefrom.

The flanges 50, 52, are not materially different, in terms of determining what elements comprise the "end wall" in Jamison, as well as in terms of characterizing the "generally rectangular" cross-sectional shape of a tube, from the reinforcing ribs present on the side walls in Figures 6a and 6b of Appellants' drawings, *i.e.*, they are parts of the wall that protrude from the main wall surface and cause the shape of the wall to deviate from planarity. The presence of such deviations does not compel a finding that the tubes are not "generally rectangular". To the contrary, Appellants specification evidences the term "generally rectangular" includes tube shapes in which one or more of the walls has protrusions extending therefrom.

Appellants characterize the cross-sectional shape of the Jamison tube as being “saucer shaped”, in that the joined metal plates are each of a “drawn cup and flange construction”. (App. Br. 8) Appellants argue that this shape is not generally rectangular because the flanges 50, 52 extend outwardly from the plate pairs 20, to form this so-called saucer shape. (App. Br. 8) We are not persuaded. The presence of flanges 50, 52 is comparable to the provision of longitudinal ribs on the side walls of Appellants’ “generally rectangular” tubes. The Jamison tubes are similarly “generally rectangular”.<sup>3</sup>

We turn now to Appellants’ contention that the Jamison patent does not disclose that the walls of the collecting tank are joined in a fluid tight manner to end walls of the tubes to form a fluid tight joint therebetween.

Appellants’ principal contention is that the Jamison collecting tank is joined to flanges 50, 52, which, Appellants assert, are not reasonably construed as end walls of the tube.<sup>4</sup> We have concluded otherwise, and thus the Jamison patent does

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<sup>3</sup> The unnumbered wall portions of the Jamison end wall may not be precisely or entirely planar sides, in that the lining in Figure 4 could be indicative of the presence of lateral step-down portions extending from side walls 48 to the point where they are joined. The resulting cross section of the tube remains, however, “generally rectangular”, as deviations from complete planarity of the walls is considered by Appellants as being within the bounds of the term “generally rectangular”. (Findings of Fact 9-11) We make note of this in the event that Appellants believe that this issue is in contention, in its characterization of the Jamison tube as being “saucer” shaped.

<sup>4</sup> The argument appears to be that the collecting tank is joined to the flanges, and not to the end walls of the tubes. While we have concluded that the flanges are part of the end walls, we note, in any event, that there is no requirement in the claims that the collecting tank be joined *directly* to the end walls of the tubes.

disclose a structure in which the collecting tank is connected to the end walls of the tubes.

We find Appellants' remaining arguments to be similarly unavailing. In arguing that flanges 50, 52 are not end walls meeting the claim limitations, Appellants' contend that the walls of the collecting tank do not extend over the front and back of the core "past said bifurcation", nor are they joined to the end walls of the tube "along and beyond said bifurcation". (Reply Br. 3)

Jamison discloses that the channel side walls (corresponding to the claimed collecting tank walls) cover the root areas where the flanges 50, 52 are still joined together and are joined to the lateral edge portions 64 of end flanges 56, 58, to create a fluid tight seal, so that fluid inside manifolds 26, 28 can only flow through the flow channels 54 inside plate pairs 20. (Finding of Fact 7)

These end flanges 56, 58 constitute the formed segments at the end of the tube (Findings of Fact 5, 7), where the end walls are bifurcated (*i.e.*, not joined together, *see*, Specification, p. 15, ll. 1-3), and the lateral edge portions 64 thereof are joined in a fluid tight manner to the channel (collecting tank) side walls along and beyond the bifurcation. (Finding of Fact 7) The disclosure in Jamison that the channel side walls cover the root areas where the flanges 50, 52 are still joined together is an indication that the channel side walls extend past the bifurcation of the end walls of the tube. (Findings of Fact 6, 7)

The Examiner has met the burden of establishing a *prima facie* case of anticipation. As expressed herein, Appellants have not persuaded us that its claimed invention is patentable over the Jamison patent.

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### CONCLUSIONS OF LAW

We conclude that the Appellants have failed to establish that reversible error exists in the rejection of Claims 1, 2 and 11 under 35 U.S.C. §102(e).

### DECISION

The decision of the Examiner to reject claims 1, 2 and 11 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv) (2006).

AFFIRMED

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